EPIDEMIC

OF

SCARLET FEVER

AT

DONALDSON'S HOSPITAL

DURING THE AUTUMN AND WINTER OF 1861.

BY

JAMES D. GILLESPIE, M.D., F.R.C.S.E.,

SURGEON TO THE HOSPITAL.

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EPIDEMIC OF SCARLET FEVER.

In the Monthly Journal of Medical Science for the year 1853, I published an account of an epidemic of scarlet fever at Donaldson's Hospital, in which I gave an analysis of 70 cases of that disease; and I now purpose giving a report of 43 cases, which occurred in the same institution towards the end of last year.

Before entering on the statement in connexion with the late epidemic, I may briefly allude to the cases which have occurred during the interval; and it may also be advisable to recapitulate the leading features of the epidemic of 1852, as it was observed in the hospital. That epidemic was of a mild character, and of a remarkably consistent type, being characterized by,—"1*st*, The almost invariable sickness and vomiting, most frequently of greenish biliary matter; 2*d*, The invariably injected appearance of the fauces prior to, or ushering in, the febrile symptoms; 3*d*, The sthenic rather than asthenic type of the fever; 4*th*, The little tendency to severe head symptoms; 5*th*, The total absence of the malignant form of the disease; 6*th*, The mildness of the sequelæ, which for the most part affected the glands and cellular tissue of the neck; 7*th*, The non-existence of dropsy, or of albuminous urine, whether as a concomitant or sequela." Such being the characteristics of the fever, they sufficiently account for the absence of any fatal case.

In 1853 and 1854 the hospital enjoyed perfect immunity from the disease; but in 1855, 18 cases were observed. All of these had smart fever, and pretty acute sore throat, but only 7 of them had anything like a distinct eruption, a mere mottling of the surface, as of a reddish colour shining through the skin, and chiefly on the chest, being apparent in the great majority of cases.

In 3 of these cases, albuminuria was observed after the children had been considered convalescent and been permitted to rise. Each of these had laboured under a severe attack of scarlatina, with well-marked eruption.

The fever prevailed from the middle of November to the end of

February, and was supposed to have been imported from town where it was raging, as the children had been permitted to visit their friends three days before the first case appeared.

The cases occurred as follows :—

18th November 1855	. . . .	1 Deaf, mute girl.
23d „ „	. . . .	1 do.
24th „ „	. . . .	3 { 2 Hearing girls. 1 Deaf mute boy.
25th „ „	. . . .	2 Hearing girls.
29th „ „	. . . .	1 Deaf mute boy.
8th December „	. . . .	2 Hearing boys.
9th „ „	. . . .	1 Hearing girl.
10th „ „	. . . .	2 Hearing girls.
16th „ „	. . . .	1 Deaf mute girl.
23d „ „	. . . .	1 Hearing girl.
6th January 1856,	. . . .	1 Deaf mute girl.
5th February „	. . . .	1 Deaf mute boy.
1st March „	. . . .	1 Hearing boy.

Of the 3 cases in which coagulable urine was detected, the following particulars may be noted.

In the first case, M. M., a deaf mute girl, the fever commenced on 23d November, with extreme prostration of strength, a pulse 176 in frequency, and a livid-coloured eruption. In the course of the disease the wrists became swollen and painful. The water was repeatedly examined at this time, but was found natural. On the 18th December, however, when the child was considered convalescent, being up and moving about in the sick-room, her water was observed to be very high-coloured, and when tested by heat and nitric acid was found coagulable. Two or three days afterwards, it was again tested, but the albumen had disappeared.

In the second case of albuminuria, A. M., a deaf mute girl, the disease commenced on 16th December. She had high sthenic fever, pulse 132, and a copious vivid eruption. On 26th December she was allowed to rise. On 31st December she was seized with sickness, vomiting, and fever, with almost complete suppression of urine, only three ounces being passed in the twenty-four hours. This was examined and found highly coagulable. On 5th January the water was found not coagulable; but again, on the 8th and 10th, slight coagulability returned; on the 14th there was only a trace, and thereafter this symptom disappeared.

In the third case of albuminuria, S. T, a deaf mute boy, the fever began on the 5th of February, was of a sthenic type, with a diffuse florid eruption and acute sore throat. Desquamation commenced on the 12th, and was very general over the entire surface of the body; on the 21st the patient was permitted to rise. On the 23d he had headache, and was dull and apparently oppressed. The urine was scanty, not high coloured, and not coagulable; density, 1016. On the 25th he felt better, the urine being more abundant, and its density 1024, not coagulable. On the 28th he

did not feel so well. His pulse was slow and full, sixty-four beats in the minute; his face pale and puffy, and all the morning he had been vomiting pure green bile. There was great tenderness over the liver. The urine was 1018 in density, and very considerably coagulable. He had been costive for two days, and his stomach rejected all laxatives. The symptoms ultimately yielded to blue pill and colocynth. On 4th March he was well, and the urine was free from albumen.

In October 1856 three cases occurred; two boys and a girl. The boys were taken ill on the same day, 2d October, with sickness, headache, slight sore throat, and high fever, and presented the white loaded tongue with enlarged papillæ; one of them had a bright scarlet rash, while the other had no eruption whatever, though the other symptoms were precisely similar. The girl was seized on 4th October, had no sickness, a very slight sore throat, but a copious bright scarlet rash, and a severe eczematous affection of the ears. All the patients did well, and none of them had albuminuria.

From October 1856 the hospital enjoyed complete immunity from the scourge of scarlet fever till the 6th November 1861, when the series of cases, which I shall now bring under your notice, commenced.

I propose giving a short abstract of each case, as it appears to me, that this will be the best way of proving how materially different the epidemic as it occurred in Donaldson's Hospital was, as regards the great majority of cases, from the ordinarily defined varieties of the disease.

Case 1.—J. D., hearing boy; admitted 6th November 1861, with sickness, fever, and slight sore throat. 7th, Fever very high; pulse 140; eruption appearing. 8th, Mottled, brownish-red eruption; tongue covered with a thick white crust. 9th, Pulse 140; crust on tongue peeling off, exposing very red enlarged papillæ; throat covered with aphthous patches; at other places very red. 11th, Pulse 146; eruption on chest very dark. 12th, Pulse 135. 13th, Skin desquamating in small miliary particles. 14th, Swelling and pain of wrist-joints; pulse 128. 19th, Swelling of wrists gone. 25th, Convalescent. No albuminuria.

Case 2.—D. W., hearing boy; admitted 7th November. Symptoms exactly the same as the first, only milder. 14th, Pulse 110, wrists swollen and painful. 18th, Convalescent. No albuminuria.

Case 3.—J. M., deaf mute girl; admitted 7th November, with slight sore throat, foul tongue, headache, and high fever. 8th, Mottled, dark red eruption. 9th, Skin beginning to desquamate, with miliary bloody points; fever still high. 10th, Fever very high; pulse 150. 11th, Pulse 144. 12th, Pulse 132. 13th, Pulse 108; much better, tongue very raw. 14th, Pulse 96; swelling of wrists, and of one foot above the toes. 16th, Swelling gone. 18th, Convalescent. No albuminuria.

Case 4.—W. A. D., hearing boy; admitted 10th November, with bright scarlet eruption; throat and tongue very red, without aphthæ; fever not high; pulse 100. This boy is of weak intellect, and is constantly whistling or singing. 16th, Convalescent. No albuminuria.

Case 5.—B. D., hearing girl; admitted 15th November, with fever and slight sore throat; no eruption visible. 16th, After warm bath slight mottling of skin on chest; pulse 96. 18th, Convalescent. No albuminuria. 1st

December, Sent down to school. 5th January 1862, Re-admitted, with sore throat and fever. 6th, Pulse 100; tongue white, with much enlarged papillæ; roseolar eruption on chest. 7th, Violent epistaxis this morning; pulse 120; tongue now brownish-red at sides, with enlarged papillæ. 9th, Fever abated. 12th, Convalescent. No albuminuria.

Case 6.—J. C., housemaid; admitted 18th November, with rigors and sore throat, which she has had for two days. Fever very high; pulse 150; rose-coloured blush on skin, chiefly on the face and arms; throat very painful. 19th, Fever abated; pulse 120; eruption disappearing; left tonsil much inflamed. 23d, Much better. 29th, Abscess in tonsil. 6th December, Convalescent.

Case 7.—A. S., hearing boy; admitted 22d November. This boy complained on the morning of the 18th of slight sore throat; he had no fever, and his tongue was quite clean. When I saw him at visit he said his throat was better, so he was sent down stairs again. Since then he has been out playing in wet snow, and to-day he is sent up with general œdema, but more particularly of the face and hands. His throat is now very painful and congested; urine scanty, density 1020, coagulable; breathing much oppressed. 23d, Breathing easier. 25th, Urine still coagulable; swelling diminishing. 28th, Pulse and breathing natural; swelling of limbs gone; urine, density 1010, still coagulable, but less so. Face still puffy. 7th December, Convalescent; no trace of albumen.

Case 8.—J. M., deaf mute girl; admitted 23d November, with sore throat and slight fever; indistinct, pale pinkish blush on chest; eyes suffused. 29th, Convalescent. 5th January 1862, Re-admitted with sore throat, but no fever. 7th, Convalescent. No albuminuria.

Case 9.—A. D., hearing girl; admitted 23d November, with headache, sickness, and rigors; no sore throat and no eruption; pulse 132. 25th, Fever very high; pulse 150; face flushed; eyes suffused; tonsils swollen, but not painful; tongue covered with white fur, through which large papillæ are peeping. 26th, Pulse 130. 27th, Fever abated; pulse 108. 29th, Cuticle desquamating. 8th December, Convalescent. No albuminuria.

Case 10.—C. H., hearing boy; admitted 24th November, with headache, fever, and slight sore throat, pain of one knee-joint, with swelling. 26th, Pain and swelling of other knee; fever not so high. This boy was under treatment for acute rheumatism about a year and a half ago. 30th, Fever gone, still slight pains in limbs. 4th December, Convalescent. No albuminuria.

Case 11.—J. W., deaf mute boy; admitted 24th November, with headache, sickness, and smart fever; throat slightly inflamed; tongue white, with enlarged papillæ. 27th, Pulse 120; no eruption. 29th, Convalescent. 4th January 1862, Re-admitted with slight sore throat and high fever; reddish mottling of chest; eyes heavy; tongue loaded. 6th, Eruption faded. 12th, Convalescent. No albuminuria.

Case 12.—E. S., hearing girl; admitted 22d November, with headache and high fever; no sore throat and no eruption. 28th, Convalescent. 5th December, Re-admitted with high fever, sickness, headache, and sore throat; at present has rigors; pulse 134; skin on chest rose-coloured. 6th, To-day the skin on the belly and lower part of chest has a peculiar papular eruption on it, consisting of little rose-coloured circles of various sizes, with sound skin inside. The skin is not raised at all; the eruption, as it were, rather shining through it than actually on it. 7th, Eruption completely disappeared. 9th, Convalescent. No albuminuria.

Case 13.—E. M., deaf mute girl; admitted 26th November, with high fever, eyes suffused, headache, and sore throat. 27th, Fever moderated; pulse 114; tongue white, with enlarged papillæ; slight mottling of skin on chest. 28th, Pulse 120. 10th December, Convalescent. No albuminuria.

Case 14.—S. S., hearing girl; admitted 27th November, with headache, slight sore throat, and loaded tongue; pulse 120. 28th, Pulse 120; very indistinct appearance of mottling on chest and calves of legs. 6th December, Fever abated. 10th, Convalescent. No albuminuria.

Case 15.—C. D., hearing girl; admitted 9th Deeember, with slight fever, sore throat, and roseolar eruption on ehest 10th, Eruption still out on chest, and slightly also on face; throat mueh swollen. 11th, Eruption gone; pulse 110. 12th, Fever gone. 16th, Convalescent. No albuminuria.

Case 16.—M. C., hearing girl; admitted 10th Deeember, with headaehe, but no sore throat; slight roseolar eruption on ehest; pulse 114. 12th, Fever abated. 16th, Convalescent. No albuminuria.

Case 17.—M. M., hearing girl; admitted 12th Deeember, with sore throat and mottled roseolar eruption on ehest; tongue foul; fever slight. 18th, Convalescent. No albuminuria.

Case 18.—J. D., warden; admitted 28th December. Has had sore throat for some days; throat now very acutely inflamed, with much swelling, ehiefly of left tousil and side of palate; fever very high; slight spotty eruption on chest. 29th, Fever mueh abated; tongue eovered with aphthæ. 10th January 1862, Convalescent. No albuminuria.

Case 19.—A. J. T., hearing girl; admitted 2d January, with high fever and mottled eruption on chest, not very distinet; searcely any sore throat; tongue white with enlarged papillæ; pulse 134. 3d, Pulse 134; throat injected and spotty. 4th, Pulse 108. 7th, Pulse 72. 10th, Convaleseent. No albuminuria.

Case 20.—M. A. R., hearing girl; admitted 2d January, with high fever and headache, but no sore throat; skin on chest slightly mottled. 5th, Fever abated. 10th, Convaleseent. No albuminuria.

Case 21.—M. M'K., deaf mute girl; admitted 2d January, with high fever, but scareely any sore throat; slight mottling of skin on chest; pulse 120. 5th, Skin still mottled; pulse 110. 8th, Pulse 102; eruption gone; tongue very foul, eovered with a brown fur, with enlarged papillæ. 10th, Convaleseent. No albuminuria.

Case 22.—J. P., hearing boy; admitted 2d January, with high fever and suffused face. 3d, Slight mottling of chest; fever abated, the boy having sweated very profusely. 5th, Convaleseent. No albuminuria.

Case 23.—T. F., hearing boy; admitted 3d January, with slight fever and sore throat; no eruption; tongue white, with enlarged papillæ. 5th, Convalescent. No albuminuria.

Case 24.—J. F., hearing boy, brother of the last ease; admitted 4th Jannary, with high fever, smart sore throat, and the eharaeteristie tongue. 5th, Slight mottling of ehest; throat swollen; fever abated; pulse 80. 10th, Convaleseent. No albuminuria.

Case 25.—A. J., deaf mute girl; admitted 4th January, with high fever, sore throat, and slightly mottled ehest, very indistinet; pulse 108. 5th, Pulse 82; throat injected and spotted. 10th, Convaleseent. No albuminuria.

Case 26.—M. D., hearing girl; admitted 4th January, with sore throat and fever. 5th, Pulse 124; throat slightly injeeted; tongue eovered by brownish fur, with enlarged red papillæ at side and tip; mottling on ehest. 7th, Pulse 92. 12th, Convaleseent. No albuminuria.

Case 27.—S. R., hearing girl; admitted 5th January, with sore throat, brown tongue, and enlarged papillæ; mottling on ehest, and red spots on fauces; fever high; pulse 124. 6th, Pulse 132. 7th, Pulse 102; mottling on chest now of a pale brownish-pink hue. 8th, Pulse 104. 10th, Pulse 96. 15th, Convalescent. No albuminuria.

Case 28.—C. M., hearing girl; admitted 6th January, with headaehe; no sore throat, but a distinct patehy roseolar eruption on chest; pulse 120; tongue white, furred, with enlarged papillæ. 7th, Pulse 90; eruption gone; profusely sweated by the vapour apparatus. 15th, Convaleseent. No albuminuria.

Case 29.—J. M., hearing girl; admitted 6th January, with slight sore throat, and a very slight appearanee of patehy eruption on ehest; fever very high; pulse 140; vapour apparatus employed. 7th, Fever mueh abated; pulse 105; eruption gone. 8th, Pulse 116; irregular. 9th, Pulse 108; again regular; 12th, Pulse still frequent; but she is well in other respeets. 20th, Convaleseent. No albumiuuria.

Case 30.—J. S., hearing boy; admitted 6th January, with headache, sore throat, and high fever; vapour apparatus to be employed, and the cooling mixture given at intervals. 7th, Pulse 104; throat slightly injected; no trace of eruption. 8th, Pulse 96; better. 9th, Has been vomiting all the morning; very weak; to get some sherry. 10th, Last night this boy was very ill, having had frequent vomiting, his pulse being very feeble, and with intense pain in the head; there were also distinct subcrepitant râles over the whole chest, but more especially on the left side; the pulse was irregular; and at times the boy became very cold, and seemed to be sinking; a mustard blister was applied to the chest; bismuth in large doses was tried to allay the vomiting; and brandy in frequent small quantities was prescribed; the vapour-bath was again applied to the trunk and extremities, producing profuse diaphoresis; his head was much relieved by this application, but the sickness continued; pulse 92; very weak; the bronchitic affection has entirely disappeared, and his breathing is now quite easy; to-day a large mustard poultice is to be applied to the belly, and the brandy and bismuth are to be continued. 9 P.M., Feels much better; has been only once sick, and has retained a cup of strong coffee; pulse, 96. 11th, A change for the worse again took place last night about midnight, the boy becoming violently delirious, the pulse very rapid, and the sickness recurring; he frequently gave utterance to most discordant screams; to-day he complains much of pain over the temples; pulse 140; he is very restless, and occasionally delirious; head to be shaved, cold applied, and the vapour-bath to the lower extremities. 8 P.M., No better; almost quite insensible, but can be roused; gives frequent utterance to very peculiar screams; pulse 145; a fly blister to be applied to the head, and five drops of the tincture of capsicum to be given when the delirium is high. 12th, Slightly better to-day; fever not so high; now much quieter; has had four doses of the capsicum; pulse 118; bowels to be moved by injection; urine thick, but abundant; density 1025; no trace of albumen; he has been fed on beef-tea, and milk mixed with lime-water, which remained on the stomach. 8 P.M., More delirious; would not permit anything to pass his lips all the afternoon; pulse now weak, 100; almost quite unconscious; extremely restless, and constantly screaming; pupils natural. At 11 P.M. he became quieter, but shortly after midnight breathed his last.

Case 31.—A. C., deaf mute boy; admitted 7th January, with high fever; foul and dry tongue, red at tip and sides; has been vomiting; throat slightly injected; skin on chest very slightly mottled, but barely perceptible, as he is much marked by small-pox; pulse 142, weak; to have the vapour apparatus applied. 8th, Profusely sweated; has been delirious all night; now quieter; pulse 92; tongue brown, and very dry; no eruption now perceptible; has had severe attacks of vomiting; urine abundant. 9th, Last night the delirium again became excessive, and he was very violent, giving utterance also to the same sort of screams as were observed in the last case; the vomiting resisted every method tried to arrest it; at half-past three this morning he became quieter; but at half-past six was found by the nurse to be dead, having breathed his last without any perceptible struggle; this was the biggest and strongest boy in the hospital, and during his residence there he had been remarkably healthy.

Case 32.—A. R., hearing girl; admitted 7th January, with high fever, and a distinct mottled eruption on the chest and abdomen; throat very slightly affected; eyes suffused; tongue white, with enlarged papillæ; pulse 124; was sent to the sick-room in the middle of October, and lay for five days with a mild form of the same symptoms, but no eruption then perceptible. 9th, Eruption well out, but only on the chest; a thick white fur on tongue, peeling off in some places, leaving a bright red, raw surface, with enlarged papillæ. 10th, Eruption now involving legs and arms; pulse 112. 12th, Desquamation commencing, leaving red, bloody-looking miliary points; urine, density 1009; no traces of albumen. 15th, Pulse 72. 20th, Convalescent. No albuminuria.

Case 33.—J. M., hearing girl; admitted 7th January, with high fever,

sore throat, and a very indistinct mottling of chest; eyes suffused. 8th, Pulse 116. 10th, Fever abated. 15th, Convalescent.

Case 34.—M. A., deaf mute girl; admitted 7th January; sick and vomiting; cold; pulse weak, 120; throat very slightly affected. 8th, Pulse 126; hardly any trace of eruption. 9th, Pulse 120. 12th, Pulse 126. 18th, Convalescent. No albuminuria.

Case 35.—C. M., hearing girl; admitted 8th January, with sickness and headache, but no sore throat; no eruption; pulse 114; tongue white, with enlarged papillæ. 9th, Pulse 114. 10th, Pulse 100. 15th, Convalescent. No albuminuria.

Case 36.—J. O., hearing girl; admitted 8th January, with sickness and vomiting; fever moderate. 9th, Pulse 108, very weak; eyes suffused; no eruption apparent. 10th, Pulse 100. 15th, Convalescent. No albuminuria.

Case 37.—G. M., deaf mute girl; admitted 9th January, with sickness and sore throat; eyes suffused; face flushed; no eruption visible; not much fever. 10th, Fever high; pulse bounding, 108; slight mottling of chest; throat very slightly affected. 12th, Fever abated. 15th, Convalescent. No albuminuria.

Case 38.—J. P., deaf mute girl; admitted 10th January, with sickness, headache, but no sore throat, and no eruption; pulse 120. 12th, Pulse 100; tongue white with enlarged papillæ. 13th, Very slight appearance of mottling on chest below the skin; fever much abated; pulse 88; tongue very foul, covered with dirty white fur. 15th, A little more distinct appearance of mottling on chest; tongue loaded with brownish-white fur, red at tip and edges, with enlarged papillæ; no fever whatever; pulse 72. 20th, Convalescent. No albuminuria.

Case 39.—A. T., hearing boy; admitted 10th January, with slight sore throat, slight fever, and no eruption. 14th, Tongue brown, dry, and red at sides and tip; fever moderate. 15th, Pulse 82. 17th, Convalescent. No albuminuria.

Case 40.—E. S., hearing girl; admitted 12th January, with slight sore throat, and fever. 13th, Fever not high; Pulse 108; skin moist; throat slightly injected, not painful; no eruption. 15th, Convalescent. No albuminuria.

Case 41.—J. W., hearing boy; admitted 12th January; deadly sick, but not vomiting; intense pain of head, intolerance of light; fever very high; pulse 150; very slight sore throat; no swelling, nor much redness of fauces, merely a few red spots on soft palate; no eruption on skin; to have a bath and cooling mixture. 13th, Profusely sweated by bath, and diaphoresis kept up by the mixture; was very quiet all night; pulse 100, very weak; no trace of eruption; head heavy; much inclined to dose; eyebrows disagreeably contracted; no sickness; vapour apparatus to be applied. Afternoon, Seen in consultation by Dr Andrew Wood; stimulating treatment to be adopted, and the sweating continued; three grains of the carb. ammon. to be given every three hours, and small quantities of brandy occasionally. 8 P.M., Slightly better; pulse 100; 14th, Throughout last night frequently delirious; talking incessantly in a low muttering style; sensible only when roused. After examining the boy this forenoon, and making him show me his tongue, to which he objected in a semi-delirious way, saying he had shown it to me before, and there was no use showing it again, I had gone into the next room, and was in the act of sitting down to write my report, when I was hastily summoned to see the boy, as the nurse thought he was in a fit, and on entering the ward, I found a fearful change had taken place. He was foaming at the mouth; the lips were livid, almost black; the cheeks and eyebrows much the same, but not quite so deep in colour; the pulse very frequent and full; the pupils enormously dilated; the breathing became very slow and laboured, the pulse continuing regular and firm; and within three minutes of the time in which he had spoken to me he was dead, though the pulse was felt beating for fully a minute or longer, I should say, after he had breathed his last. Till within an hour or two of his death he passed plenty of water, never doing so in-

voluntarily, and the urine never containing albumen. *Post-mortem*, twenty-four hours after death. The lips and cheeks were intensely livid; the lungs were extremely congested, but otherwise perfectly healthy; the heart was normal, but pumped out, not a trace of blood or clot in it, save in the right ventricle, where there was a very small insignificant soft black clot. On opening the head, the dura mater was found to be apparently quite healthy; there was no abnormal quantity of fluid in the lateral ventricles, nor in the arachnoid. The pia mater was intensely congested, the smaller bloodvessels being greatly distended by florid blood; the convolutions of the hemispheres were firmly matted together by recent lymph; the covering of the medulla oblongata was especially congested, and the structure of that organ was more than usually soft and vascular. At the base of the brain, about a dessert-spoonful of purulent-looking blood-tinged serum was lying. The kidneys were much congested, especially the cortical substance. The bladder was nearly full, but not distended by water, which was of a natural appearance.

Case 42.—A. R., one of the male teachers; admitted 19th January, with rigors, headache, and slight sore throat; tongue covered with brownish fur; throat injected, and slightly swollen; pulse 98; slight appearance of eruption on upper part of chest; no trace elsewhere. 21st, Eruption more distinct, extending from chest over upper part of abdomen, consisting of minute pale rose-coloured spots. 25th, Convalescent.

Case 43.—J. S., housemaid; admitted 31st January; has been complaining for some days of sickness and sore throat; fever very high; pulse 130; throat much inflamed; left tonsil much swollen; tongue foul, with enlarged papillæ; front of chest slightly red, but no distinct eruption. 1st February, Fever reduced; pulse 114; throat easier. 5th, Convalescent.

From a perusal of these cases, it may be seen what a strong family type pervades them all. The first four cases had the scarlet rash well defined, as had one or two isolated cases afterwards; but the great majority had only a slight trace of eruption, appearing for a very short time on the chest, while the throat affection was so trivial as not to be noted by some of the patients; and yet the fever, and very characteristic tongue, with the occasional occurrence of more ordinarily well-marked symptoms, removed all doubt from my mind as to the nature of those cases which were otherwise obscure. Case 7, the boy who really had no symptoms whatever of scarlet fever, save a very slight sore throat, so insignificant, indeed, as not to call for any treatment, became, from imprudent exposure, the only illustration of dropsy and albuminous urine among the whole number; and my experience in this case made me more careful in retaining for a lengthened period of time in the convalescent wards all the subsequent cases, however slightly they had been affected by the disease.

The order in which the cases occurred does not throw any light on the mode by which the scarlatina was disseminated among the inmates of the hospital. All that can be said is, that after the New Year's festivities the number of cases increased, and the three fatal events took place; but whether we can justly deduce any inferences therefrom, I leave it for others to determine.

The phenomena of infection are very difficult to recognise, and it is not easy to ascertain the reasons why the cases began to drop in one by one from the 6th of November up to the 27th; that an

interval of twelve days then ensued; that from 12th December, there was an interval of sixteen days; and that thereafter the same regularity, with only increased numbers, was again the order of progression.

On the whole, I am disposed to believe that the infectious matter had taken possession of, or been introduced into, the hospital; that all the inmates were more or less exposed to the noxious influence; and that, according to the extent of their exposure, or the varying protective power of different constitutions, the invasion of the disease was encouraged or held at bay.

I take this view of the matter, because the isolation of the cases, and the rapidity of their appearance, were adverse to the conclusion, that the propagation of the disease was due to direct contact.

The following table gives the dates at which they came under observation:—

Date of Appearance.	No. of Cases.
November 6, 1861,	1
„ 7, „	2
„ 10, „	1
„ 15, „	1
„ 18, „	1
„ 22, „	2
„ 23, „	2
„ 24, „	2
„ 26, „	1
„ 27, „	1
December 9, „	1
„ 10, „	1
„ 12, „	1
„ 28, „	1
Carry forward,	18

Date of Appearance.	No. of Cases.
Brought forward,	18
January 2, 1862,	4
„ 3, „	1
„ 4, „	3
„ 5, „	1
„ 6, „	3
„ 7, „	4
„ 8, „	2
„ 9, „	1
„ 10, „	2
„ 12, „	2
„ 19, „	1
„ 31, „	1
Total,	43

In 1852, when 70 cases of scarlatina occurred, the inmates of the hospital amounted to 149; but since that time an increase in the number has taken place, and during the late epidemic, 207 persons—175 children and 32 adults—were resident in the building. Of these I have ascertained that 89 had previously, at some period or other, suffered from scarlatina, while 118 had hitherto escaped from the disease. 10 of the 89 took it a second time, and 33 of the 118 were primarily attacked by the disease. Of the 89, 74 were children and 15 adults; of the 118, 101 were children and 17 adults.

Of the total number of children in the hospital, 99 were boys, 76 girls; 13 of the boys and 26 of the girls took scarlatina. In 5 of the 13 boys and in 5 of the 26 girls it was the second attack. One of the boys suffering from scarlet fever for the second time (Case 41), died of the attack. Of the total number of adults, 13 were males, 19 females: of these, 2 males and 2 females took scarlatina. None of the four could recollect having previously laboured under the disease.

The cases in which the attack of the disease was a second one, were Nos. 4, 17, 23, 24, 25, 26, 33, 34, 39, 41. In only one of these, No. 4, was the ordinary scarlet eruption visible. In three of them Nos. 23, 39, and 41, there was absolutely no eruption; in the others, merely slight mottling of chest. In all of them, however, there was the characteristic tongue, and more or less fever. In two cases, Nos. 34 and 41, extreme sickness was present: in the former terminating in vomiting and prostration, from which, however, the patient soon rallied; while in the latter, the sickness, though not attended by vomiting, was marked by what proved a much more serious symptom,—intense pain of the head, with extremely rapid feeble pulse.

Before leaving the subject of a recurrence of scarlatina, I may draw your attention to two facts,—1*st*, That my experience shows that when an epidemic of scarlatina breaks out among a large collection of people, chiefly children, resident in the same building, the morbid poison affects with different degrees of intensity a considerable number of those who had previously passed through the disease; 2*d*, That having previously had scarlatina does not afford absolute protection from a fatal issue to those who a second time suffer from the complaint.

In a clinical essay on scarlatina, published lately by Dr Richardson in the Asclepiad, he says, "I take it, nevertheless, that the phenomenon of recurrence is most exceptional; and it is satisfactory to know that I can discover neither in literature nor in general experience one single case in which a second attack has proved fatal."[1] Case 41 will, I trust, prove that no certainty of immunity from a fatal issue to a second attack exists, though such an occurrence must be very rare, seeing that Dr Richardson, in the course of extensive practice, and after much research, has not met with such a case. I have it on very good authority,—the testimony of his grandmother and aunt,—that a few years ago the poor boy, J. W. (Case 41), who was lately cut off by scarlatina in the hospital, nearly died of the disease, another child in the family also having it very severely. The father and mother being absent in the United States prevents my being able at present to corroborate by their evidence the truth of these statements.

With regard to the frequency of recurrence, the fact of ten out of the forty-three cases enumerated, having previously had the disease, shows that such cases are not so exceptional as has been stated. It may be argued that these second attacks are not true instances of the disease. To such arguments I would say, read the cases of primary and secondary invasion, and then point out what difference, save perhaps in degree, exists between them. I am ready to admit that some of the cases entered as scarlatina, if taken separately, might be denied the privilege of ranking as such; but no one who reads the short notes of all the cases I have jotted

[1] Asclepiad, p. 73.

down can, I should think, come to any other conclusion than that they are all instances, in some shape or other, of that multiform disease.

Dr Richardson gives himself as an instance of three attacks of scarlet fever, and I am able, in connexion with the present epidemic, to quote an illustration of the same nature :—

Miss G., when at a boarding-school in Roxburghshire, suffered from a severe attack of scarlatina, which involved many inmates of the establishment. About four months ago, while residing in my house, Miss G. was seized with symptoms precisely similar to those presented by the cases I was attending at Donaldson's Hospital, only the eruption was more vivid, involving the greater part of the body and limbs; the throat was moderately affected, and the fever smart. Convalescence was soon established. About three weeks ago, Miss G. and her maid went to the south-west of England, and two or three days after her arrival she was seized with nausea and sickness, and a vivid scarlet eruption appeared, extending over the face, neck, and chest, and as far as the knees. The fauces were inflamed, the tongue red and furred, and the fever high. The disease terminated a few days afterwards in very general desquamation of the cuticle. The maid had precisely similar symptoms, only milder; and very extensive desquamation took place. This was the servant's first attack. I should suppose the poison was carried from Edinburgh, and that the fever was developed in consequence of fatigue, for there is no epidemic of scarlatina where the parties are now residing. I am indebted to Dr Maidstone Smith (of Exmouth) for the history of their illness.

Dr Richardson has taken great pains to show, from very extensive statistics, that the popular notion of females being more liable to the disease is erroneous; and from his tables we may gather that fully as many males as females suffer from scarlatina. I do not think, however, he has so clearly refuted what my experience at Donaldson's Hospital would lead me to infer, that when a certain number of girls and boys are shut up in one residence, the girls appear to be most susceptible of the disease. Such at least would seem to be a warrantable conclusion, from what I have now witnessed in three epidemics at the hospital.

In 1852 there were 61 girls and 62 boys; of these, 35 girls and 27 boys took the fever. In 1855, the proportion was 12 girls to 6 boys. In the winter of 1861, out of 39 cases there were 26 girls and 13 boys, at a time, too, when the number of boys in the hospital greatly preponderated, there being altogether 99 boys and 76 girls.

From such slender statistics I am not disposed to draw any strong conclusions; but I may perhaps be permitted to throw out the supposition that certain peculiarities in girls as compared to boys, such as their herding more together, their being not so much given to out-door exercises, with perhaps a greater tendency on the part of their dresses to inveigle and store up the morbid poison,

may sufficiently account for their apparently greater susceptibility to attacks of scarlatina.

Were I to attempt, by a comparison of the symptoms, to range the cases I have detailed, under any of the definitions of the varieties of scarlatina given by authors, I should be notably puzzled. Where was the florid eruption of the first variety, the acute sore throat of the second, the sloughing of the textures in the third, or even the scarlatina faucium, or sine exanthemate, of the fourth? The prevailing type of the disease I witnessed was simply fever, the sore throat being almost imperceptible; the eruption, when present, being in nine cases out of ten only a slight mottling on the chest, which would most assuredly have escaped notice, had attention not been specially directed to the appearance of the skin; but the strawberry tongue was an invariable symptom except in the very severe cases, where it assumed more the typhoid character. It may be said that those cases which were characterized by such undecided symptoms, were hardly worthy of being ranked as scarlatina, but yet the three fatal cases to which I now propose directing your attention, began exactly like the milder ones, and did not display, save in their fatal issue, the ordinary features of scarlatina. In none of the three was the characteristic eruption present, in none was the sore throat of any intensity, but in all three the poison appeared to go at once to the brain, causing such a striking similarity of symptoms, that, save in the mere question of the time taken to destroy each, one description would have sufficed for all. The time when these fatal cases occurred is so far remarkable, that they took place while surrounded by the mildest forms of the disease, nor could they be in any way connected with each other, the two first becoming affected on two successive days, and the third only five days thereafter.

That uræmic poisoning was not the cause of death I infer from the fact, that there was no diminution in the quantity of urine excreted, and no apparent change in its character. In only one of the three could a post-mortem examination be obtained; but what was disclosed on that occasion would lead me to conjecture, that much the same appearances would have been brought to light in the others had inspection been permitted. I do not expect ever to witness again such a remarkably pure case of death from apnœa, as my presence in the hospital enabled me to observe, when the boy J. W. so suddenly breathed his last. The appearance of the medulla oblongata may perhaps sufficiently account for the instantaneous suspension of the respiratory functions, and this, by leading to congestion, will explain the enormous dilatation of the pupils which accompanied the change.

A notable feature in the cases I have narrated is the absence of sequelæ. Except in Case 7, which I may call undeveloped scarlatina, no secondary affection whatever was noticed; and, as I have previously mentioned, the dropsical symptoms and albuminuria

would most probably have been prevented, had the boy been confined to the house.

In 1853, when treating of this same subject, I had occasion to protest against the opinion which was then very popular, that albuminous urine was to be found at some time or other in every case of scarlatina. How such a proposition could be entertained for a moment, when contradicted by strong negative testimony, I am at a loss to understand; but within the last few days the same assertion has been made to me, and I look forward with much interest to hear the conclusions to which such a learned Society as the Edinburgh Medico-Chirurgical will arrive.

I did not examine the urine of all my scarlatina patients every day, but it was done very frequently, and I am satisfied that no such critical phenomenon as has been alleged took place. In none of the 43 cases, save in No. 7, which did not show any manifest signs of scarlatina till exposure to the cold and wet of melting snow developed the dropsy, was any albuminuria or dropsy present.

There is surely no need to multiply proof, but I may quote from my previous paper, one authority who was remarkable for the accuracy of his observations. Mr William Wood, who reported on the epidemic of 1836, tells us,—"In Heriot's Hospital, of 45 boys who were attacked by scarlatina, 8 had dropsy and albuminous urine; while at the Merchant Maidens' Hospital, which is closely adjacent, and during the very same period, 21 girls had the fever, but not one of them dropsy or albuminous urine."

My views with regard to albuminuria may be shortly stated thus:—The kidney complication giving rise to albuminous urine, either as a dangerous sequela, or as a critical evacuation merely, does not necessarily form an item in the train of symptoms which indicate scarlatina, though frequently typical in some epidemics. Three circumstances appear to favour its development, 1*st*, The intensity of the poison which gave rise to the primary disease; 2*d*, Predisposition on the part of the patient; 3*d*, Incautious exposure to cold during convalescence.

Albuminuria has been observed in many varieties of scarlet fever, perhaps more frequently in the mild than in the more severe forms. This can be explained in two ways, either by supposing that the poison had chosen the kidneys as emunctories from the system, or that, owing to the trivial nature of the case, less than ordinary care had been taken in preventing exposure to cold. I am disposed to consider the three cases of albuminuria observed in 1855, as illustrations of the intensity of the poison and predisposition combined. They all had a smart attack of fever, copious eruption, and desquamation of the whole cuticle. They were carefully guarded against cold, but yet kidney derangement came on; and as others, placed in exactly similar circumstances had equally severe symptoms, and no albuminuria, we may fairly infer that there was some predisposition on the part of these patients to a renal infection. No. 7 of the epidemic of 1861 must be admitted to be an excellent

specimen of the third class, arising from exposure to cold Were any good to be gained by multiplying species, it might come under the classification of Dr Copland's fifth variety, "Latent Scarlatina;" for, though the poison must have been in the system, there were no external manifestations till supervening dropsy set the question at rest.

The late epidemic does not afford me much opportunity for suggestions regarding treatment. Most of the cases would probably have done well without any medical interference whatever; but the use of the warm bath, vapour apparatus, and diaphoretics, seemed to increase the comfort, and sometimes to diminish the fever of the patients. The fatal cases were cut off so rapidly, and appeared so little amenable to treatment, that I can make no proposal for a change in the remedies ordinarily employed on such occasions.

The attempt to promote profuse diaphoresis did not prove of much value in the three cases where the head symptoms became so fatally prominent. A theory, which at one time was very popular, has long since ceased to have much weight with me,—viz., that a badly developed eruption is likely to lead to a dangerous head complication. Were such a theory true, we should most certainly have expected a much greater proportion of the cases reported to have suffered from cranial derangement, for a copious eruption was the exception not the rule, and no amount of applications to the skin seemed to favour its induction. This was very different from what I observed in 1852 and 1855, more especially in the former year; for the use of the warm bath was then a most powerful auxiliary, helping to bring out an extensive florid eruption, and wonderfully diminishing the intensity of the fever.

In the late epidemic, the use of the vapour apparatus was occasionally found to alleviate the feverish symptoms, although it had no effect in promoting the appearance of the eruption; but I thought that in some cases it materially weakened the strength of the children.

I have been induced to bring these cases under the notice of the Society, because this city during last winter passed through a serious epidemic of scarlet fever, and judging from what I myself witnessed in private practice, and from what I have heard from others, I believe that the cases at Donaldson's Hospital do not illustrate the prevailing form of the epidemic as it was observed in town, and they certainly do not appear to me to be examples of any of the ordinary varieties of the disease.

When compared with the two former epidemics I have described, a marked resemblance to that of 1855, as regards at all events the scanty ill-defined eruption, can be pointed out; and while it differs from that of 1852 in the character of the eruption, which was very bright and comparatively constant, they resemble each other closely in the absence of dropsy and albuminuria.

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From the author's compts